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1. Appeal Brief (39pgs);
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant:	Michael Coden	**Appeal Brief**
Serial No.	09/723,013	
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On February 28, 2006, Appellants filed a notice of appeal from the final rejection of claims **52-116** set forth in the Office Action mailed December 28, 2005. This Appeal Brief is accompanied by a fee in the amount of $ 500.00 as required under 37 C.F.R. §1.17(c).

1. **Real party in interest**

The real party in interest in the above-captioned application is the assignee ADC Telecommunications, Inc.

2. **Related appeals and interferences**

There are no other appeals or interferences known to the Appellants that will have a bearing on the Board's decision in the present appeal.

3. **Status of claims**

Claims **52-116** were rejected in an Office Action mailed December 28, 2005. The rejection of claims **52-116** is the subject of this appeal.

4. **Status of amendments**

No amendment has been filed subsequent to the Office Action mailed December 28, 2005.

5. **Summary of claimed subject matter**

Pursuant to 37 C.F.R. §41.37(c)(1)(v), Applicant provides the following concise explanation of the subject matter defined in each independent claim with reference to the specification by page and line number and to the drawings by reference number. Applicant submits that the citations to the specification and drawings are not intended to be exhaustive and that other support for the various claims may also be found throughout the specification and drawings.

A. Language of claim 52

Claim 52 is directed to a ring network for transporting data packets between network devices. The network of claim 52 is described in the specification at page 12, line 17 to page 16 lines 3, page 20 line 6 to page 22 line 8, page 24 line 5 to page 25 line 9, and in Figures 1, 3, 5, 8 and 11.

The ring network (100) comprises a number of ring switches (104-1 to 104-N), each ring switch (104-1 to 104-N) having at one ring port, at least one local port and at least one table that is adapted to self learn which network devices (A-O) are associated with each port of the ring switch (104-1 to 104-N) based on source addresses of packets processed by the ring switch (104-1 to 104-N); the at least one ring port of each ring switch (104-1 to 104-N) being coupled to a ring port of another ring switch (104-1 to 104-N) in the ring network (100); wherein the ring switch (104-1 to 104-N) switches data packets between its ring and local ports to direct the data packets to specified network devices (A-O) associated with the at least one local port of the ring switches (104-1 to 104-N) in the ring network (100); and wherein the ports of the ring switches (104-1 to 104-N) are configured such that data packets received at the at least one ring port and the at least one local port that are not destined for a network device (A-O) associated with the at least one local port of the ring switch (104-1 to 104-N) are switched to another ring switch (104-1 to 104-N) on the ring network (100) based on the at least one address table without the use of a token or encapsulating the packet.

B. Language of claim 61

Claim 61 is directed to a ring network. The network of claim 61 is described in the specification at page 12, line 17 to page 16 lines 3, page 20 line 6 to page 22 line 8, page 24 line 5 to page 25 line 9, and in Figures 1, 3, 5, 8 and 11.

Ring network (100) comprise multiple ring switches (104-1 to 104-N), each ring switch (104-1 to 104-N) having at least one ring port and at least one local port; each ring switch (104-1 to 104-N) having at least one address table that is adapted to self learn which network devices (A-O) are associated with each port of the ring switch (104-1 to 104-N) based on source addresses of data packets processed by the ring switch (104-1 to 104-N); and wherein data packets received at a ring port that are not destined for a network device (A-O) associated with a local port of the ring switch (104-1 to 104-N) are switched to another ring switch (104-1 to 104-N) based on the at least one address table without the use of a token or encapsulating the data packet.

C. Language of claim 67

Claim 67 is directed to a ring switch for a ring network. The ring switch of claim 67 is described in the specification at page 12, line 17 to page 16 lines 3, page 20 line 6 to page 22 line 8, page 24 line 5 to page 25 line 9, and in Figures 1, 3, 5, 8 and 11.

The ring switch (104-1 to 104-N) comprises at least one ring port that is coupleable to transport data packets in a ring network (100); at least one local port that is coupleable to at least one local area network (106-1 to 106-N) or device; at least one address table that is adapted to track the addresses of network devices (A-O) associated with each port of the ring switch (104-1 to 104-N) based on source addresses of data packets received at the ports of the ring switch (104-1 to 104-N); and wherein data packets received at the at least one ring port that are not destined for a network device (A-O) associated with any of the at least one local ports of the ring switch (104-1 to 104-N) are switched to another ring switch (104-1 to 104-N) coupled to the at least one ring port based on the at least one address table without the use of a token or encapsulating the packet.

D. Language of claim 71

Claim 71 is directed to a ring switch for a ring network. The ring switch of claim 71 is described in the specification at page 12, line 17 to page 16 lines 3, page 20 line 6 to page 22 line 8, page 24 line 5 to page 25 line 9, and in Figures 1, 3, 5, 8 and 11.

The ring switch (104-1 to 104-N) comprises a bi-directional ring port that is coupleable to receive data packets from and transmit data packets over a ring of ring switches (104-1 to 104-N); at least one local port that is coupleable to at least one local area network (106-1 to 106-N); at least one address table that is adapted to self learn and store the addresses of network devices (A-O) associated with the at least one bi-directional ring port and the at least one local port based on source addresses from data packets processed by the ring switch (104-1 to 104-N); and wherein the ring switch (104-1 to 104-N) allows data packets received at the ring port to be retransmitted out the ring port of the switch so that data packets can be forwarded on to other ring switches (104-1 to 104-N) in the ring network (100) based on the at least one address table without the use of a token or encapsulating the packet.

E. Language of claim 73

Claim 73 is directed to a ring switch for a ring network. The ring switch of claim 73 is described in the specification at page 12, line 17 to page 16 lines 3, page 20 line 6 to page 22 line 8, page 24 line 5 to page 25 line 9, and in Figures 1, 3, 5, 8 and 11.

The ring switch (104-1 to 104-N) comprises a ring-in port that is coupleable to receive data packets from the ring network (100); a ring-out port that is coupleable to provide data packets to the ring network (100); at

least one local port that is coupleable to a local area network (106-1 to 106-N); at least one address table that is adapted to track the addresses of network devices (A-O) associated with the ports of the ring switch (104-1 to 104-N); and wherein the address table is adapted to associate the addresses of network devices (A-O) with the ring-out port when data packets are received at the ring-in port.

F. Language of claim 75

Claim 75 is directed to a method for processing data packets in a ring switch of a ring network. The method of claim 75 is described in the specification at page 16 line 4 to page 20, line 5, and in Figures 2, 4.

The method comprises placing data packets on the ring network (100); selectively modifying at least one table in each ring switch (104-1 to 104-N) to identify network devices (A-O) associated with each port of the ring switch (104-1 to 104-N) when data packets having unknown source identifier are processed; selectively switching the data packets around the ring network (100) by comparing a destination identifier in the data packets with the at least one table; and removing data packets from the ring at a local port of the ring switch (104-1 to 104-N) when a destination identifier in the data packets indicate that the destination network device (A-O) is located on a local port of the ring switch (104-1 to 104-N).

G. Language of claim 77

Claim 77 is directed to a method for processing data packets in a ring switch of a ring network. The method of claim 77 is described in the specification at page 16 line 4 to page 20, line 5, and in Figures 2, 4.

The method comprises receiving a data packet at a bi-directional ring port of the ring switch (104-1 to 104-N); reading the source address of the data packet; when the source address is not in an address table for a port of the ring switch (104-1 to 104-N), storing the source address in at least one address table with an indication that the address is for a network device (A-O) associated with the ring port; reading a destination address from the data packet; and when the destination address for the data packet is in an address table for the ring switch (104-1 to 104-N), switching the data packet to the port of the ring switch (104-1 to 104-N) that is associated with the destination address, even if the data packet was received at the ring port and the destination address is associated with the ring port without using a token or encapsulating the data packet.

H. Language of claim 80

Claim 80 is directed to a method of routing signals in a network. The method of claim 80 is described in the specification at page 16 line 4 to page 20, line 5, and in Figures 2, 4.

The method comprises placing data packets on a ring network (100) that includes ring switches (104-1 to 104-N) that each are adapted to self learn the location of network devices (A-O) associated with the network as packets with unknown source addresses are processed by the ring switches (104-1 to 104-N); and selectively switching the data packets around and off the ring network (100) based on identifiers of the data packets that identify a destination network of the system.

I. Language of claim 83

Claim 83 is directed to a method for building an address table for a port of a first ring switch in a ring network of a plurality of ring switches.

The method of claim 83 is described in the specification at page 22 line 9 to page 23 line 17 and in Figure 7.

The method comprises receiving a data packet at a first port of the first ring switch (104-1 to 104-N); reading the source address from the data packet; and storing the source address in an address table for the first ring switch (104-1 to 104-N) that indicates that the data packet originated from a network device, not including another of the plurality of ring switches (104-1 to 104-N), associated with a second, different port of the first ring switch (104-1 to 104-N) so as to allow unidirectional transmission on the ring network (100).

J. Language of claim 86

Claim 86 is directed to a method for routing data packets in a plurality of ring switches in a ring network. The method of claim 86 is described in the specification at page 16 line 4 to page 20, line 5, and in Figures 2, 4.

The method comprises receiving a data packet at a first ring port of at least one ring switch (104-1 to 104-N) of the plurality of ring switches (104-1 to 104-N) in a ring network (100); reading a destination address from the data packet; and routing the data packet in reference to an address table for the at least one ring switch (104-1 to 104-N) such that if the destination address of the data packet is associated with a network device (A-O) that is local to the at least one ring switch (104-1 to 104-N), the data packet is transmitted out one or more local ports of the at least one ring switch (104-1 to 104-N), otherwise, if the destination address of the data packet is not associated with a network device (A-O) that is local to the at least one ring switch (104-1 to 104-N), the data packet is transmitted out a second ring port of at least one ring switch (104-1 to

104-N) so as to allow unidirectional transmission on the ring network (100).

K. Language of claim 93

Claim 93 is directed to a ring switch for a ring network. The ring switch of claim 93 is described in the specification at page 12, line 17 to page 16 lines 3, page 20 line 6 to page 22 line 8, page 24 line 5 to page 25 line 9, and in Figures 1, 3, 5, 8 and 11.

The ring switch (104-1 to 104-N) comprises at least one ring port that is coupleable to transport data packets in a ring network (100); at least one local port that is coupleable to at least one local area network (106-1 to 106-N) or device; at least one address table that is adapted to track the addresses of network devices (A-O) associated with each port of the ring switch (104-1 to 104-N) based on source addresses; and wherein data packets received at the at least one ring port that are destined for a network device (A-O) associated with any of the at least one local ports of the ring switch (104-1 to 104-N) based on the at least one address table are removed from the ring and switched out the local port.

L. Language of claim 102

Claim 102 is directed to a ring network. The network of claim 102 is described in the specification at page 12, line 17 to page 16 lines 3, page 20 line 6 to page 22 line 8, page 24 line 5 to page 25 line 9, and in Figures 1, 3, 5, 8 and 11.

A ring network (100) comprises multiple ring switches (104-1 to 104-N), communicatively coupled by a plurality of segments to form a ring, each ring switch (104-1 to 104-N) having at least one ring port and at least one local port; each ring switch (104-1 to 104-N) having at least one

address table that associates which network devices (A-O) are associated with each port of the ring switch (104-1 to 104-N); and wherein data packets received at a ring port that are destined for a network device (A-O) associated with a local port of the ring switch (104-1 to 104-N) are switched off the ring based on the at least one address table so as to free up downstream bandwidth on the plurality of segments to allow unidirectional transmission on the ring network (100) with increased capacity.

M. Language of claim 109

Claim 109 is directed to a method for operating a ring switch of a ring network. The method of claim 109 is described in the specification at page 16 line 4 to page 20, line 5, and in Figures 2, 4.

The method comprises receiving data packets from the ring network (100) at a ring-in port of a ring switch (104-1 to 104-N); routing the data packets that are destined for a network device (A-O) associated with at least one local port of the ring switch (104-1 to 104-N) to the at least one local port; routing the data packets that are not destined for a network device (A-O) associated with the at least one local port to a ring-out port; and transmitting the data packets from the ring-out port to another ring switch (104-1 to 104-N).

N. Language of claim 116

Claim 116 is directed to a method for operating a network of a plurality of ring switches. The method of claim 116 is described in the specification at page 16 line 4 to page 20, line 5, and in Figures 2, 4.

The method comprises placing data packets on a network containing a plurality of ring switches (104-1 to 104-N); receiving the data

packets from the ring network (100) at a ring-in port of a ring switch (104-1 to 104-N) of the plurality of ring switches (104-1 to 104-N); switching the data packets that are destined for a network device (A-O) associated with at least one local port of the ring switch (104-1 to 104-N) to the at least one local port of the ring switch (104-1 to 104-N); and transmitting the data packets that are not destined for a network device (A-O) associated with the at least one local port of the ring switch (104-1 to 104-N) from a ring-out port of the ring switch (104-1 to 104-N) of the plurality of ring switches (104-1 to 104-N) to another ring switch (104-1 to 104-N) of the plurality of ring switches (104-1 to 104-N).

6. **Grounds of rejection to be reviewed on appeal**

Under 35 U.S.C. §102(b), are claims 109-110, 113 and 116 anticipated by McCreary (USP 5384566)?

Under 35 U.S.C. §103(a), are claims 52-53, 56, 58, 60-62, 66-67, 70, 73-76, 78-80, 82-84, 86-90, 93-99, 102-103, 105-106, 109-110, 112-113 and 116 unpatentable over Konishi (USP 4933937) in view of McCreary (USP 5384566)?

Under 35 U.S.C. §103(a), are claims 54, 55, 57, 59, 63-65, 68-69, 71-72, 77-79, 81, 85, 91-92, 100-101, 104, 107-108, 111 and 114-115 unpatentable over Konishi and McCreary as applied to claims 52, 61, 67, 80, 83, 86, 93, 102 and 109 and further in view of Chin (USP 5617421)?

7. **Argument**

A. Rejection of claims 109-110, 113 and 116 under 35 U.S.C. §102(b).

i. The Applicable Law

35 U.S.C. § 102 provides in relevant part:

A person shall be entitled to a patent unless-

(b) the invention was patented or described in a printed publication in this or a foreign country or in a public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A claim is anticipated under 354 U.S.C. § 102 only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051,1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.* 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but identical terminology is not required. *In re Bond*, 910 F. 2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990).

Anticipation focuses on whether a claim reads on a product or process disclosed in a prior art reference, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983). To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 37 U.S.P.Q. 2d 1618 (Fed Cir. 1996)

ii. Analysis.

Claims 109-110, 113 and 116 were rejected under 35 USC § 102(b) as being anticipated by McCreary, (U.S. Patent No. 5,384,566). Respectfully, Applicant traverses this rejection.

McCreary fails to disclose a method which either *switches* or *routes* packets on or off of a ring network to a local destination, as is provided by the Applicant's present claim 109 and claim 116, and for at least that reason is not anticipated by McCreary. According to McCreary, a ring network packet which arrives at device 20 from the ring network is either *copied* for subsequent transmission to a local network 18 or *ignored* by station 28,30 (McCreary, Col. 4 line 55-63, col. 6 line 11-23, claims 1, 7 and 10). In either case, "After receipt of the frame 48, and possible *copy*, the frame 48 is forwarded on the network 12, 14. As implied above, this occurs at each device 20 on the network 12, 14 until the frame 48 returns to the particular network 18 from which it was originally transmitted. There it will be stripped." (McCreary, Col. 6 line 23-28). In other words, according to McCreary, only duplicates of ring packets received from the ring network

are transmitted to a local network 18 by device 20. The ring packets received by device 20 from the ring network subsequently exit from device 20 back to the ring network. The one exception is when a frame 48 "returns to the particular network 18 from which it was originally transmitted. There it will be stripped." (McCreary, Col. 6 line 27-28). Thus, a ring packet must travel completely around the ring back to its originating network before it is removed from the ring network.

In contrast, each of the independent claim 109 and 116 of the present application call for methods that respectively comprise *routing* and *switching* packets on or off of the ring network to their destination networks (e.g., Specification, p. 17, lines 12-17). This distinction is significant because, unlike McCreary, a ring network of claims 109 and 116 need not waste bandwidth by continuing to carry excess data frames around the ring back to their originator for elimination. Under the present claims, frames are eliminated from the ring as they are switched off to their destination. Frames return to the originating ring switch only if the "incoming data packet is either improperly addressed, a broadcast packet, or a multicast packet" (*see* Specification, page 18, line 1-7). For example, claim 109 specifies "*routing* the data packets that are destined for a network device associated with at least one local port of the ring switch *to the at least one local port*." Claim 116 specifies "*switching* the data packets that are destined for a network device associated with at least one local port of the ring switch *to the at least one local* port of the ring switch". As provided by these claims, data packets addressed to a destination associated with a local port of the switch are removed from the ring network and do not travel back to their originating switch for elimination.

The Examiner's reliance on McCreary Figure 4 to support this rejection is flawed because Figure 4 does not describe the process attributed to it by the Examiner. Examiner asserts that once a ring switch receive a packet addressed to a local node "the ring switch node copies the packet from the buffer for forwarding to at least one port of the switch ring (it reads on route the packet from the bugger of the ring switch of application to the destination station wherein the original packet is still stored in the buffer unit it discards or overwrite by another packet) and the frame is discarded at the ring switch (Fig 4, Ref 81) if the frame already route at least one port of the rung switch

which has a destination node couple to it." (Office Action, p. 6). The Examiner's reading of McCreary is not supported by Figure 4 or the text of the McCreary specification.

Contrary to the Examiner's assertion, Figure 4, Block 81 is executed if, and only if, block 78 is first executed, in which "the entirety of frame 48, to include data field 56 and MAC field 58, is copied for the network 18. After copying frame 48, the determination is next made at decision block 80 as to whether an upstream station has already copied the frame 48." (McCreary, Col. 7 lines 18-24). If an upstream station has already previously copied frame 48, then there is no purpose for the station executing the method of Figure 4 to maintain the copy of frame 48 obtained in block 78. Thus, it discards the unneeded copy of frame 48 "as indicated by function block 81." (McCreary, Col. 7 lines 42-44) Then, "the exit function at block 72 is executed." (McCreary, Col. 7 lines 44-45.) As the exit function at block 72 is described in the specification, proceeding to execute the exit function at block 72 results in the "release of frame 48 back onto the ring-topology network 12, 14" (McCreary, Col. 7, lines 4-7, lines 9-11). Thus, in contradiction to the Examiner's assertion, McCreary teaches a switch that copies a data packet having a destination addressed associated with a local node and then releases the original data packet back to the ring network. Under the teachings of McCreary, a switch does not remove a data packet from the ring network "until the frame 48 returns to the particular network 18 from which it was originally transmitted. There it will be stripped." (McCreary, Col. 6 lines 23-28.) McCreary thus does not teach *routing* and *switching* packets on or off of the ring network to their destination networks (*see* Specification, p. 17, lines 12-17) as provided by independent claims 109 and 116 of the present application.

For at least the reasons explained above, the Appellant respectfully asserts that McCreary does not disclose or describe systems or methods for routing or switching ring packets to local destinations as called for in independent claims 109 and 116 of the present application. Applicant respectfully asserts that claims 109, and 116, and claims 110 and 113 which depend directly or indirectly from claim 109, are allowable. Withdrawal of the rejections is respectfully requested.

B. Rejection of claims 52-53, 56, 58, 60-62, 66-67, 70, 73-76, 78-80, 82-84, 86-90, 93-99, 102-103, 105-106, 109-110, 112-113 and 116 under 35 U.S.C. § 103(a)

i. The Applicable Law

35 U.S.C. § 103 provides in relevant part:

Conditions for patentability, non-obvious subject matter.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

"The ultimate determination...whether an invention is or not obvious is a legal conclusion based on underlying factual inquiries including (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) the objective evidence of nonobviousness." *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ2d 1614, 1616 (1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966)).

When applying 35 U.S.C. §103(a), the claimed invention must be considered as a whole; the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; the references must be viewed without the benefit of impermissible hindsight afforded by the claimed invention and a reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine teachings in the references. Second, there must be a reasonable

expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.

The teaching or suggestions to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. MPEP 2143 citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

ii. Analysis

a. Analysis of claims 52-53, 56, 58, 60-62, 66-67, 70, 75-76, 78-80, 82, 86-90, 93-99, 102-103, 105-106, 109-110, 112-113 and 116

Claims 52-53, 56, 58, 60-62, 66-67, 70, 75-76, 78-80, 82, 86-90, 93-99, 102-103, 105-106, 109-110, 112-113 and 116 were rejected under 35 USC § 103(a) as being unpatentable over Konishi (U.S. Patent No. 4,933,937) in view of McCreary, (U.S. Patent No. 5,384,566). Respectfully, Applicant traverses this rejection.

The claims of the present application are not unpatentable under 35 USC § 103(a) because Konishi in view of McCreary fails to teach or suggest each and every element of the Appellant's independent claims 52, 61, 67, 75, 80, 86, 93, 102, 109 and 116. As discussed above, the Appellant has shown that McCreary describes a ring network that *copies* ring network packets for subsequent transmission to a local network (McCreary, Col. 4 line 55-63, col. 6 line 11-23, claims 1, 7 and 10) and then forwards the original network packet back on the ring network for eventual elimination by its originating network element.

In contrast, each of the independent claims 52, 61, 67, 75, 80, 86, 93, 102, 109 and 116 of the present application calls for an apparatus or method that either *switches* or *routes* packets on or off of the ring network to their destination (Specification, p. 17, lines 12-17). For example, in claim 52 "the ring switch switches data packets between its ring and local ports to direct the data packets to specified network devices." Further, claim 75 includes "*removing* data packets from the ring at a local port of the ring switch when a destination identifier in the data packet indicate that the *destination network device* is

located on a local port of the ring switch (104-1 to 104-N)." Claim 80 specifies "selectively *switching* the data packets around and *off the ring network* based on identifiers of the data packets that identify a *destination* network of the system." Claim 86 specifies "if the *destination* address of the data packet is associated with a network device *that is local* to the at least one ring switch, the data packet is *transmitted out one or more local ports* of the at least one ring switch, *otherwise*, if the destination address of the data packet is not associated with a network device that is local to the at least one ring switch, the data packet is *transmitted out a second ring port*". Claim 93 specifies "data packets received at the at least one ring port that are *destined for* a network device associated with any of the at least one *local ports* on the ring switch based on the at least one address table *are removed from the ring and switched out the local port.*" Claim 102 specifies "data packets received at a ring port that are *destined for* a network device associated with a *local port* of the right switch are *switched off the ring*". Claim 109 specifies "*routing* the data packets that are destined for a network device associated with at least one local port of the ring switch to the at least one local port. Claim 116 specifies "*switching* the data packets that are destined for a network device associated with at least one local port of the ring switch to the at least one local port of the ring switch". In contrast to McCreary, the claims of the present application teach a switch wherein a ring packet having a destination local to the ring switch is switched off of the ring network and transmitted to the local network destination, rather than just copied from the ring network.

McCreary discloses that all ring packets continue propagation on the ring until the packet returns to its source. (McCreary, Col. 6 line 27-28). According to McCreary, the destination is relevant only as to whether a packet should be copied to a local network. (McCreary, Col. 6 line 16-19). In contrast, under the present claims, frames are returned to the originating ring switch only if the "incoming data packet is either improperly addressed, a broadcast packet, or a multicast packet" (Specification, p. 18, line 1-7). For example, in Claim 61 "data packets received at a ring port that are *not destined* for a network device associated with a local port of the ring switch *are switched to another ring switch*". Claim 67 is similarly directed at "[a] ring switch for a ring network" where

packets "not destined for a network device associated with any of the at least one local ports of the ring are switched to another ring." As discussed above, this distinction is significant because, unlike McCreary, a ring network of the present claims need not waste bandwidth by continuing to carry excess data frames around the ring back to their originator for elimination.

For at least the reasons explained above, the Appellant respectfully asserts that McCreary fails to disclose or describe systems or methods for either routing or switching ring packets to local destinations as called for in claims 52, 61, 67, 75, 80, 86, 93, 102, 109 and 116 of the present application. As the Examiner admits, Konishi also fails to disclose or describe these elements. Therefore, Konishi in view of McCreary fails to teach or suggest each and every element of Applicant's claims.

The Appellant respectfully asserts that independent claims 52, 61, 67, 75, 80, 86, 93, 102, 109 and 116 and claims 53, 56, 58, 60, 62, 66, 70, 76, 78-79, 82, 87-90, 94-99, 103, 105-106, 110, and 112-113, which depend directly or indirectly from the independent claims, are allowable. Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a).

b. Analysis of claims 73 and 74

Regarding claim 73, Applicant respectfully asserts that Konishi in view of McCreary fails to teach or suggest each and every element of Applicant's claims. Neither Konishi or McCreary disclose or describe systems or methods "wherein the address table is adapted to associate the address of network devices with *the ring-out port* when data packets are received at *the ring-in port*" as is taught in claim 73 of the present application. To support this rejection, the Examiner points to "Table Memory" 33 of Konishi Figure 2 and that portion of the specification that states "There are two types of learning procedures, i.e., a first learning procedure for generating the address pair from frame data concerning the LAN, and a second learning procedure for generating an address pair from frame data concerning the back-bone network. When the system is powered up, smallest AT table of tables T1 through Tn is used." (Konishi, Col. 4 lines 24-29.) These references fail to describe that Table Memory 33 associates "the address

of network devices with *the ring-out port* when data packets are received at *the ring-in port*" as is taught in claim 73 of the present application.

For at least these reasons, applicant respectfully asserts that claim 73, and claim 74 which depends directly from claim 73, are allowable and respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a).

c. Rejection of claims 83 and 84

Regarding claim 83, Applicant respectfully asserts that Konishi in view of McCreary fails to teach or suggest each and every element of Applicant's claims. Konishi describes "[a] table memory stores an address transformation table (AT table)" wherein "an address pair consisting of a node address and a LAN address, of a LAN to which a node indicated by the node address belongs, is registered in the AT table." (Konishi, Abstract). Neither Konishi or McCreary disclose or describe systems or methods "storing the source address in an address table for the first ring switch that indicates that the data packet originated from a network device, not including another of the plurality of ring switches, *associated with a second, different* port of the first ring switch *so as to allow unidirectional transmission* on the ring network" as taught in claim 83 of the present invention. Applicant respectfully asserts that claim 83, and claim 84 which depends directly from claim 83, are allowable and respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a).

C. Rejection of claims 54, 55, 57, 59, 63-65, 68-69, 71-72, 77-79, 81, 85, 91-92, 100-101, 104, 107,108, 111 and 114-115under 35 U.S.C. § 103(a)

i. The Applicable Law

35 U.S.C. § 103 provides in relevant part:

Conditions for patentability, non-obvious subject matter.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

"The ultimate determination...whether an invention is or not obvious is a legal conclusion based on underlying factual inquiries including (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) the objective evidence of nonobviousness." *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ2d 1614, 1616 (1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966)).

When applying 35 U.S.C. §103(a), the claimed invention must be considered as a whole; the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; the references must be viewed without the benefit of impermissible hindsight afforded by the claimed invention and a reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine teachings in the references. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.

The teaching or suggestions to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. MPEP 2143 citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

ii. Analysis

a. Analysis of claims 54, 55, 57, 59, 63-65, 68-69, 71-72, 77-79, 81, 91-92, 100-101, 104, 107,108, 111 and 114-115.

Claims 54, 55, 57, 59, 63-65, 68-69, 71-72, 77-79, 81, 91-92, 100-101, 104, 107,108, 111 and 114-115 were rejected under 35 USC § 103(a) as being unpatentable over Konishi (U.S. Patent No. 4,933,937) in view of McCreary, (U.S. Patent No. 5,384,566) as applied to claims 52, 61, 67, 80, 83, 86, 93, 102 and 109 above, and further in view of Chin (U.S. Patent No. 5,617,421). Respectfully, Applicant traverses this rejection.

The claims of the present application are not unpatentable under 35 USC § 103(a) because Konishi in view of McCreary fails to teach or suggest each and every element of the Applicant's claims. As discussed above, the Appellant has shown that McCreary describes a ring network that *copies* ring network packets for subsequent transmission to a local network (McCreary, Col. 4 line 55-63, col. 6 line 11-23, claims 1, 7 and 10) and then forwards the original network packet back on the ring network for eventual elimination by its originating network element. In contrast, each of Appellant's independent claims 52, 61, 67, 71, 77, 80, 86, 93, 102 and 109 of the present application calls for an apparatus or method that either *switches* or *routes* packets on or off of the ring network to their destination (Specification, p. 17, lines 12-17). For example, in claim 52 "the ring switch switches data packets between its ring and local ports to direct the data packets to specified network devices." Claim 77 specifies "switching the data packet to the port of the ring switch that is associated with the destination address". Claim 80 specifies "selectively *switching* the data packets around and *off the ring network* based on identifiers of the data packets that identify a *destination* network of the system." Claim 86 specifies "if the *destination* address of the data packet is associated with a network device *that is local* to the at least one ring switch, the data packet is *transmitted out one or more local ports* of the at least one ring switch, ***otherwise***, if the destination address of the data packet is not associated with a network device that is local to the at least one ring switch, the data packet is *transmitted out a second ring port*". Claim 93 specifies "data packets received at the at least one ring port that are *destined for* a network device associated with any of the at least one *local ports* on the ring switch based on the at least one address table *are removed from the ring and switched out the local port*." Claim 102 specifies "data packets received at a ring port that are *destined for*

a network device associated with a *local port* of the right switch are *switched off the ring*". Claim 109 specifies "*routing* the data packets that are destined for a network device associated with at least one local port of the ring switch to the at least one local port.

These independent claims describe systems and methods where ring packets having a destination address local to the ring switch are switched off of the ring network and transmitted to their local destination, rather than just copied from the ring network. In contrast, McCreary discloses that all ring packets continue propagation on the ring until the packet returns to its source. (McCreary, Col. 6 line 27-28). According to McCreary, the destination is relevant only as to whether a packet should be copied to a local network. (McCreary, Col . 6 line 16-19). In contrast, under the present invention, frames are returned to the originating ring switch only if the "incoming data packet is either improperly addressed, a broadcast packet, or a multicast packet" (Specification, p. 18, line 1-7). For example, in Claim 61 "data packets received at a ring port that are *not destined* for a network device associated with a local port of the ring switch *are switched to another ring switch*". Claim 67 is similarly directed at "[a] ring switch for a ring network" where packets "not destine for a network device associated with any of the at least one local ports of the ring are switched to another ring." Claim 71 discloses "the ring switch allows data packets received at the ring port to be retransmitted out the ring port of the switch so that data packets can be forwarded on to other ring switches in the ring network." As discussed above, this distinction is significant because, unlike McCreary, a ring network of the present claims need not waste bandwidth by continuing to carry excess data frames around the ring back to their originator for elimination.

For at least the reasons discussed above, the Appellant respectfully asserts that independent claims 52, 61, 67, 71, 77, 80, 93, 102 and 109 are allowable. Therefore, claims 54, 55, 57, 59, 63-65, 68-69, 71-72, 77-79, 81, 91-92, 100-101, 104, 107,108, 111 and 114-115, which depend directly or indirectly from these independent claims, are allowable. Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a).

b. Analysis of claim 85.

Regarding claim 85, Applicant respectfully asserts that Konishi in view of McCreary and Chin fails to teach or suggest each and every element of Applicant's claims 83, upon which claim 85 is directly dependent. Konishi describes "[a] table memory stores an address transformation table (AT table)" wherein "an address pair consisting of a node address and a LAN address, of a LAN to which a node indicated by the node address belongs, is registered in the AT table." (Konishi, Abstract). Neither Konishi or McCreary or Chin disclose or describe systems or methods "storing the source address in an address table for the first ring switch that indicates that the data packet originated from a network device, not including another of the plurality of ring switches, *associated with a second, different* port of the first ring switch *so as to allow unidirectional transmission* on the ring network" as taught in claim 83 of the present invention.

Applicant respectfully asserts that claim 83, and claim 85 which depends directly from claim 83, are allowable and respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a).

Respectfully submitted,

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CLAIMS APPENDIX

52. A ring network for transporting data packets between network devices, the ring network comprising:

a number of ring switches, each ring switch having at one ring port, at least one local port and at least one table that is adapted to self learn which network devices are associated with each port of the ring switch based on source addresses of packets processed by the ring switch;

the at least one ring port of each ring switch being coupled to a ring port of another ring switch in the ring network;

wherein the ring switch switches data packets between its ring and local ports to direct the data packets to specified network devices associated with the at least one local port of the ring switches in the ring network; and

wherein the ports of the ring switches are configured such that data packets received at the at least one ring port and the at least one local port that are not destined for a network device associated with the at least one local port of the ring switch are switched to another ring switch on the ring network based on the at least one address table without the use of a token or encapsulating the packet.

53. The ring network of claim 52, wherein the ring switches each include a ring-in and a ring-out port.

54. The ring network of claim 53, wherein the ring switches are adapted to store source addresses for data packets received at the ring-in port of a ring switch in the at least one address table with an indication that data packets destined for the source address should be transmitted out the ring-out port of the ring switch.

55. The ring network of claim 52, wherein the ring switches each include a single, bi-directional ring port that allows data packets received at the bi-directional ring port to be retransmitted out the ring port of the switch so that data packets can be forwarded on to

other ring switches in the ring network without the use of a token or encapsulating the data packets.

56. The ring network of claim 52, and further including a number of ring transceivers coupled to form a ring, wherein the ring switches are coupled to the ring transceivers.

57. The ring network of claim 52, wherein the ring switches are coupled by conductors on a printed circuit board.

58. The ring network of claim 52, wherein the at least one local port for at least one of the ring switches includes at least one of a token ring port, an Ethernet port, and a Fiber Distributed Data Interface (FDDI) port.

59.) The ring network of claim 52, wherein the at least one local port for at least one of the ring switches includes at least one of a data transfer path and a PCI interface.

60. The ring network of claim 52, wherein the ring switches each include a single address table for-identifying the addresses of network devices associated with the at least one ring port and the at least one local port of the ring switch.

61. A ring network comprising:

multiple ring switches, each ring switch having at least one ring port and at least one local port;

each ring switch having at least one address table that is adapted to self learn which network devices are associated with each port of the ring switch based on source addresses of data packets processed by the ring switch; and

wherein data packets received at a ring port that are not destined for a network device associated with a local port of the ring switch are switched to another ring switch based on the at least one address table without the use of a token or encapsulating the data packet.

62. The ring network of claim 61, wherein the ring switches each include a ring-in and a ring-out port.

63. The ring network of claim 62, wherein the ring switches are adapted to store source addresses for data packets received at the ring-in port of a ring switch in the at least one address table with an indication that data packets destined for the source address should be transmitted out the ring-out port of the ring switch.

64. The ring network of claim 61, wherein the ring switches each include a single, bi-directional ring port that allows data packets received at the bi-directional ring port to be retransmitted out the ring port of the switch so that data packets can be forwarded on to other ring switches in the ring network without the use of a token or encapsulating the data packets.

65. The ring network of claim 61, wherein the ring switches are coupled by conductors on a printed circuit board.

66. The ring network of claim 61, wherein the at least one local port for at least one of the ring switches includes at least one of a token ring port, an Ethernet port, and a Fiber Distributed Data Interface (FDDI) port.

67. A ring switch for a ring network, the ring switch comprising:

at least one ring port that is coupleable to transport data packets in a ring network;

at least one local port that is coupleable to at least one local area network or device;

at least one address table that is adapted to track the addresses of network devices associated with each port of the ring switch based on source addresses of data packets received at the ports of the ring switch; and

wherein data packets received at the at least one ring port that are not destined for a network device associated with any of the at least one local ports of the ring switch are switched to another ring switch coupled to the at least one ring port based on the at least one address table without the use of a token or encapsulating the packet.

68. The ring switch of claim 67, wherein the ring switch includes a circuit that is adapted to use the source address of data packets entering a ring-in port to create entries in the at least one address table for a ring-out port for use in switching data packets.

69. The ring switch of claim 67, wherein the at least one ring port of the ring switch comprises a single, bi-directional ring port that allows data packets received at the ring port to be retransmitted out of the ring port to other ring switches.

70. The ring switch of claim 67, wherein the at least one local port for the ring switch includes at least one of a token ring port, an Ethernet port, and a Fiber Distributed Data Interface (FDDI) port.

71. A ring switch for a ring network, the ring switch comprising:

a bi-directional ring port that is coupleable to receive data packets from and transmit data packets over a ring of ring switches;

at least one local port that is coupleable to at least one local area network;

at least one address table that is adapted to self learn and store the addresses of network devices associated with the at least one bi-directional ring port and the at least one local port based on source addresses from data packets processed by the ring switch; and

wherein the ring switch allows data packets received at the ring port to be retransmitted out the ring port of the switch so that data packets can be forwarded on to other ring switches in the ring network based on the at least one address table without the use of a token or encapsulating the packet.

72. The ring switch of claim 71, wherein at least one of the at least one local ports is configured as a token ring port, an Ethernet port, and a Fiber Distributed Data Interface (FDDI) port.

73. A ring switch for a ring network, the ring switch comprising:

a ring-in port that is coupleable to receive data packets from the ring network;

a ring-out port that is coupleable to provide data packets to the ring network;

at least one local port that is coupleable to a local area network;

at least one address table that is adapted to track the addresses of network devices associated with the ports of the ring switch; and

wherein the address table is adapted to associate the addresses of network devices with the ring-out port when data packets are received at the ring-in port.

74. The ring switch of claim 73, wherein the at least one local port includes a local port configured as a token ring port, an Ethernet port, and a Fiber Distributed Data Interface (FDDI) port.

75. A method for processing data packets in a ring switch of a ring network, the method comprising:

placing data packets on the ring network;

selectively modifying at least one table in each ring switch to identify network devices associated with each port of the ring switch when data packets having unknown source identifier are processed;

selectively switching the data packets around the ring network by comparing a destination identifier in the data packets with the at least one table; and

removing data packets from the ring at a local port of the ring switch when a destination identifier in the data packets indicate that the destination network device is located on a local port of the ring switch.

76. The method of claim 75, wherein switching the data packets around is done without use of a token or encapsulating the data packets.

77. A method for processing data packets in a ring switch of a ring network, the method comprising:

receiving a data packet at a bi-directional ring port of the ring switch;

reading the source address of the data packet;

when the source address is not in an address table for a port of the ring switch, storing the source address in at least one address table with an indication that the address is for a network device associated with the ring port;

reading a destination address from the data packet; and

when the destination address for the data packet is in an address table for the ring switch, switching the data packet to the port of the ring switch that is associated with the destination address, even if the data packet was received at the ring port and the destination address is associated with the ring port without using a token or encapsulating the data packet.

78. The method of claim 77, and further comprising the step of broadcasting the data packet to all ports of the ring switch when the destination address for the data packet is not in an address table for the ring switch or the data packet is a broadcast data packet.

79. The method of claim 77, and further comprising the step of broadcasting the data packet to all appropriate ports of the ring switch when the destination address for the data packet is a multicast address.

80. A method of routing signals in a network, the method comprising:

placing data packets on a ring network that includes ring switches that each are adapted to self learn the location of network devices associated with the network as packets with unknown source addresses are processed by the ring switches; and

selectively switching the data packets around and off the ring network based on identifiers of the data packets that identify a destination network of the system.

81. The method of claim 80, wherein the self learning of the location of network devices further comprise the steps of storing the source address of each data packet in at least one address table with an indication that the address is for a network device associated with a ring port.

82. The method of claim 81, wherein removing the data packets off the ring network further comprises the steps of removing the data packet from the ring network when the source address is in the address table with an indication that the network device is associated with a local port.

83. A method for building an address table for a port of a first ring switch in a ring network of a plurality of ring switches, the method comprising:

receiving a data packet at a first port of the first ring switch;

reading the source address from the data packet; and

storing the source address in an address table for the first ring switch that indicates that the data packet originated from a network device, not including another of the plurality of ring switches, associated with a second, different port of the first ring switch so as to allow unidirectional transmission on the ring network.

84. The method of claim 83, wherein the step of reading a source address comprises the step of reading a source address from an Ethernet packet.

85. The method of claim 83, wherein the step of storing the source address in an address table comprises the step of storing the source address for the data packet in a single address table with a multi-bit signal indicating the port associated with the source address.

86. A method for routing data packets in a plurality of ring switches in a ring network, the method comprising:

receiving a data packet at a first ring port of at least one ring switch of the plurality of ring switches in a ring network;

reading a destination address from the data packet; and

routing the data packet in reference to an address table for the at least one ring switch such that if the destination address of the data packet is associated with a network device that is local to the at least one ring switch, the data packet is transmitted out one or more local ports of the at least one ring switch, otherwise, if the destination address of the data packet is not associated with a network device that is local to the at least one ring switch, the data packet is transmitted out a second ring port of at least one ring switch so as to allow unidirectional transmission on the ring network.

87. The method of claim 86, wherein the first ring port of the at least one ring switch and the second ring port of the at least one ring switch are a single bi-directional ring port.

88. The method of claim 86, wherein receiving the data packets and routing the data packets are done without use of a token or encapsulating the data packets.

89. The method of claim 86, wherein the plurality of ring switches are coupled by one of conductors on a printed circuit board, fiber optic lines, co-axial cable, and wire conductors.

90. The method of claim 86, further comprising:
discarding the data packet when a source address corresponds to a network device that is associated with a local port of the at least one ring switch.

91. The method of claim 86, further comprising:

discarding the data packet when a ring switch ID that is appended, prepended, or added to the data packet corresponds to the ring switch ID of the at least one ring switch.

92. The method of claim 86, further comprising:
discarding the data packet when a counter that is appended, prepended, or added to the data packet exceeds a specified value, wherein the counter is incremented as the data packet traverses the ring network.

93. A ring switch for a ring network, the ring switch comprising:
at least one ring port that is coupleable to transport data packets in a ring network;
at least one local port that is coupleable to at least one local area network or device;
at least one address table that is adapted to track the addresses of network devices associated with each port of the ring switch based on source addresses; and
wherein data packets received at the at least one ring port that are destined for a network device associated with any of the at least one local ports of the ring switch based on the at least one address table are removed from the ring and switched out the local port.

94. The ring switch of claim 93, wherein data packets received at the at least one ring port that are not destined for a network device associated with any of the at least one local ports of the ring switch are switched to another ring switch coupled to the at least one ring port based on the at least one address table.

95. The ring switch of claim 93, wherein the at least one ring port of the ring switch is a single bi-directional ring port.

96. The ring switch of claim 93, wherein the at least one ring port of the ring switch further comprises a ring-in port and a ring-out port.

97. The ring switch of claim 93, wherein switching the data packets is done without use of a token or encapsulating the data packets.

98. The ring switch of claim 93, wherein the at least one ring port of the ring switch is coupleable to the ring network by one of conductors on a printed circuit board, fiber optic lines, co-axial cable, and wire conductors.

99. The ring switch of claim 93, wherein the ring switch discards the data packet when a source address corresponds to a network device that is associated with a local port of the ring switch.

100. The ring switch of claim 93, wherein the ring switch discards the data packet when a ring switch ID that is appended, prepended, or added to the data packet corresponds to the ring switch ID of the ring switch.

101. The ring switch of claim 93, wherein the ring switch discards the data packet when a counter that is appended, prepended, or added to the data packet exceeds a specified value, wherein the counter is incremented as the data packet traverses a ring network.

102. A ring network comprising:

multiple ring switches, communicatively coupled by a plurality of segments to form a ring, each ring switch having at least one ring port and at least one local port;

each ring switch having at least one address table that associates which network devices are associated with each port of the ring switch; and

wherein data packets received at a ring port that are destined for a network device associated with a local port of the ring switch are switched off the ring based on the at least one address table so as to free up downstream bandwidth on the

plurality of segments to allow unidirectional transmission on the ring network with increased capacity.

103. The ring network of claim 102, wherein the multiple ring switches each include a ring-in and a ring-out port.

104. The ring network of claim 102, wherein the ring switches each include a single, bi-directional ring port that allows data packets received at the bi-directional ring port to be retransmitted out the ring port of the switch so that data packets can be forwarded on to other ring switches in the ring network.

105. The ring network of claim 102, wherein switching the data packets is done without use of a token or encapsulating the data packets.

106. The ring network of claim 102, wherein at least one ring switch of the ring network discards the data packet when a source address corresponds to a network device that is associated with a local port of the ring switch.

107. The ring network of claim 102, wherein at least one ring switch of the ring network discards the data packet when a ring switch ID that is appended, prepended, or added to the data packet corresponds to the ring switch ID of the ring switch.

108. The ring network of claim 102, wherein at least one ring switch of the ring network discards the data packet when a counter that is appended, prepended, or added to the data packet exceeds a specified value, wherein the counter is incremented as the data packet traverses a ring network.

109. A method for operating a ring switch of a ring network, the method comprising:
receiving data packets from the ring network at a ring-in port of a ring switch;

routing the data packets that are destined for a network device associated with at least one local port of the ring switch to the at least one local port;

routing the data packets that are not destined for a network device associated with the at least one local port to a ring-out port; and

transmitting the data packets from the ring-out port to another ring switch.

110. The method of claim 109, wherein receiving the data packets and transmitting the data packets are done without use of a token or encapsulating the data packets.

111. The method of claim 109, wherein the ring-in port and the ring-out port are a single bi-directional ring switch port.

112. The method of claim 109, further comprising:

comparing a source address from the data packet with at least one address table of the ring switch, wherein the at least one address table indicates which addresses are associated with each port of the switch; and

when the source address is not in the address table, associating the source address with the ring-out port in the address table.

113. The method of claim 109, further comprising:

discarding the data packet when a source address corresponds to a network device that is associated with a local port of the ring switch.

114. The method of claim 109, further comprising:

discarding the data packet when a ring switch ID that is appended, prepended, or added to the data packet corresponds to the ring switch ID of the ring switch.

115. The method of claim 109, further comprising:

discarding the data packet when a counter that is appended, prepended, or added to the data packet exceeds a specified value, wherein the counter is incremented

as the data packet traverses the ring switch.

116. A method for operating a network of a plurality of ring switches, the method comprising:

placing data packets on a network containing a plurality of ring switches;

receiving the data packets from the ring network at a ring-in port of a ring switch of the plurality of ring switches;

switching the data packets that are destined for a network device associated with at least one local port of the ring switch to the at least one local port of the ring switch; and

transmitting the data packets that are not destined for a network device associated with the at least one local port of the ring switch from a ring-out port of the ring switch of the plurality of ring switches to another ring switch of the plurality of ring switches.

EVIDENCE APPENDIX

There is nothing to present in the Evidence Appendix.

RELATED PROCEEDINGS APPENDIX

There is nothing to present in the Related Proceedings Appendix.